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Ceremony and cybrary: Digital libraries and the dialectic of place and space

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INTRODUCTION

Since the Sumerians first collected, organized and supervised administrative and religious records six millennia ago, libraries have been key physical depositories and cultural archives in the production, preservation and mediation of social capital and power through education. Despite, or perhaps because of its centrality and invisibility in the educative process, the textual, archival and discursive practices of libraries have remained exempt from inquiry. My aim here is to make the library itself the terrain and object of critical analysis and investigation. The paper argues that in the three main communications eras—namely, oral, print and digital culture—society's centres of knowledge and learning have resided in the ceremony, the library and the cybrary respectively. In a broad-brush historical grid, each of these key social institutions—the ceremony in oral culture, the library in print culture and the cybrary in digital culture—are mapped against key cultural, educational and technological orders pertaining to their time. Having examined shifts that have occurred in society's institutions of collective cultural memory, the paper then explores the question of what the recent development of global information systems and economies mean for schools and libraries of today and for teachers and learners as knowledge consumers and producers?

TECHNOLOGIES OF REPRESENTATION AND COMMUNICATION

Since communication with language and the first attempts at artistic self-expression with ochre on cave walls, humans have developed many technologies of inscription to write, count and represent time and space (cf. Schement & Curtis, 1995).[1] Three examples of socially significant information technologies include the decimal and binary numerical systems, the calendar and the sundial. Notwithstanding the importance of these communicative developments, the alphabet, the printing press and digitisation stand unparalleled in their significance for far-reaching sociocultural impact. Each of these symbol systems and information storage devices enabled specific social, economic and political transformations within particular sociocultural and historical contexts. The following table (see Table 1 below) provides an axial grid of the three main cultural memory storage systems—viz., the ceremony, the library and the cybrary—that developed with and through oral, print and digital culture respectively juxtaposed with their technological, social, cultural and institutional correlates.

	Ceremony	Library	Libr@ry
Medium	voice	book	screen
Culture	oral	print	digital
Social structure	tribal	scribal	global
Schools	religion	state	market
Era	premodern	modern	postmodern

Table 1
Technological, Social and Cultural Correlates of Educational Information Institutions

Binary, or in this case, ternary explanations for epochal change are inadequate for conceptualising the continuities and ambiguities of evolving communications forms. Notwithstanding the linear structure of the foregoing table, an historical, lineal and mutually exclusive framework of the table's elements is not intended. Spoken and written language, hand-written and printed text, book and screen, ceremony and cybrary have variably constrained and constructed the communicative and informational economies of different material, historical and cultural places and spaces. Each occurs, nevertheless, in contemporary technologised libraries as they did in cultures that were primarily oral (Purves, 1998). Ritual and ceremony form part of the discursive practices of libraries today with different form, function and frequency than in medieval contexts, but they co-exist nevertheless with the more random forms of electronic culture.

Theories of technological determinism where technologies are viewed as having direct and universal social effects by virtue of their material design are misconceived. Notions of technological instrumentalism, on the other hand, where technologies of inscription are conceived as mere tools of human agents and therefore neutral and equitable in their effects, are similarly naïve and unhelpful. Technologies in and of themselves do not have predetermined social uses or consequences (Wacjman & MacKenzie, 1999). Rather, the sociocultural, historical, economic and political contexts of use mediate their impact.[2] Particular technologies of communication and information enable certain configurations of communicative practices, textual artefacts, canonical traditions, social relations, institutional discourses and political economies associated with the production and mediation of knowledge and power. Mindful of this caveat, I turn now to a broad-brush discussion of information management forms and the associated practices and sociocultural possibilities that have evolved around and through them.

The Ceremony in Oral Culture

It was nature's technology of the human voice box and the wonder of language that enabled the rise of the earliest traditional human cultures. Before alphabetic literacy and its material externalised memory, social and cultural knowledge was transmitted by face-to-face sound, gesture and movement in custom and ceremony (Havelock, 1963). Luke (1996) shows how the spatiality of traditional societies was tied to the capacities of the human body through idiomatic expressions of action that resort to organic metaphors for their allusions.

> Conflict was chin-to-chin. Combat was hand-to-hand. Justice was eye-for-an-eye, a-tooth-for-a-tooth. Debate was heart-to-heart. Solidarity was shoulder-to-shoulder. Community was face-to-face. Friendship was arm-in-arm. And change was step-by-step. (Luke, 1996, p.123)

In oral cultures, the traditional ceremony was simultaneously the celebration of life and the centre of learning. The cycles of birth, marriage, death, the seasons and harvests were variously understood, defined and perpetuated by the ritual of ceremony. Verbal content and the visual impact of oral rites were shaped in large part by the imperative of memorability. It was in and through the rhyme and rhythm of ritualised song, story, poetry, dance and drama that lore, law, taboo and myth passed from one generation to the next (Goody, 1987). The preservation and presentation of these communal ceremonies was in large part the domain of the religious castes and orders such as shamans, imams and priests (Kapitzke, 1995).

The songlines of the Australian Aboriginal people exemplify the power of shared oral language to create and sustain viable "worlds" of human experience and existence. Sophisticated cycles of ancestral songs sung by the people groups as they traversed the land provided customary markers of location, identity and time. Repertoires of traditional songs linked to specific walking tracks organised and structured the physical and social space of what was otherwise a featureless landscape. Associated strings of words, musical notes and footprints spoke the land into physical being and spiritual meaning. Directed by an unwritten but complex calendar of ceremonies and rituals, the groups moved along the Dreaming tracks knowing where they were going, whom they would meet, and where they would find food and water. Because the myths were crucial to survival, they acted as cultural touchstones to which all other forms of meaning in storytelling, dance and body design referred. Contemporary Aborigines sing remnants of the songs today on important communal and ceremonial occasions (Lawlor, 1991).

Classicists of Greek and African culture have shown how practitioners of "oral" literature and the art of memory used visual images and virtual spaces conjured in the mind (Tofts & McKeich, 1998). The skill of memorisation entailed the construction of a designed mental environment into which the contents of a performance were fitted for orderly recall. Orators navigated detailed pictures of architectural space in their "mind's eye," which prompted the structure and content of their recitations. In effect, traditional reciters of stories used their minds as "writing surfaces" upon which they formed a visual image of their composition (Bolter, 1991, p. 58).

The Library in Manuscript and Print Culture

People groups on the five continents all developed pictographic and ideographic scripts (Gaur, 1995). Some time around 3000 BC, the Sumerians used a logographic script combining pictorial signs with symbols corresponding to units of speech. To assist them govern their expansive empire, Sumerian administrators established the first libraries replete with materials catalogues. Archaeological evidence from collections of temple and palace libraries shows that their cuneiform tablets were arranged in order and supervised by trained personnel (Johnson, 1970, p. 28).

It was, however, an insignificant Hebrew tribe in Syria-Palestine that made the conceptual breakthrough to phonetic literacy (Havelock, 1976). Some time around 1000 BC, the Semites — who according to Scripture were descendants of Noah's son, Shem and antecedents of Christ (Gospel of Luke 3:23-38) — technologised language with the alphabet. The names of the twenty-one consonants of the Greek, and hence the contemporary Roman alphabets, are the same as those the Semites devised to represent the range of sounds made by the human voice. The word "alphabet" is a composite of the first two letters— "alpha" and "beta"—of that script. All alphabetic scripts with the exception of the Indian family of

alphabets (see Diringer, 1968, pp. 261-3) derive from this single signifying system (Sampson, 1985, p. 78).

The Greeks added the five vowels around 750 BC, and social historians of literacy claimed it was then that lore became law, tribes became nations, barter became commerce, myths became literature and cults became the three great "religions of the Book," viz., Judaism, Islam and Christianity (Goody & Watt, 1968). Henceforth, knowledge was a material thing, existing apart from the minds, mouths and bodily movements of those who created it. Teachers and missionaries of the New Testament (c. 200) played a central role in the subsequent development of writing instruments and materials. Papyrologists claim that if the book was not specifically a Christian innovation, the growth and influence of that community established its widespread usage. The development of parchment established the modern book form by the fourth century. Kenyon (1951, p. 114) notes that the period of the vellum book (400-1400) corresponded with the Catholicised Christian millennium.

In oral and literate cultures, religion is instituted largely in and through ceremony. That reading was a routinised, communal activity spoken aloud and collectively until three centuries ago, testifies to its ceremonial origins. The gradual incursion of the written Word into liturgical services shifted the locus of learning from the event of the ceremony to the place of the monastic scriptorium, where books were copied and kept. The high cost of copying and illustrating restricted manuscript culture to the religious and wealthy classes.

Manuscript literacy lasted some 3,000 years until 1455, when Gutenberg adapted a winepress to produce inexpensive text with moveable type. The emergence of mass print with its far-reaching social, political and educational implications was a milestone in the communication story (cf. Eisenstein, 1979; Luke, 1989). Writing is a powerful technology because it transubstantiates meaning from a brief living present to an external space of permanent, breathless signs. Writing shifted the locus of meaning from sound and time to sight and spatiality, thereby enabling the stabilization and codification of language and knowledge in disciplines and libraries (cf. Luke & Kapitzke, 1999). Plato, Socrates, Hegel, Freud, McLuhan, Derrida, Nelson and Gibson are some of the many thinkers and theorists who have examined the nature of writing and its interrelation with memory, the psyche and society. The conspicuous absence of women from the aforementioned list of philosophical "greats" demonstrates the ideological and sociopolitical implications of writing and text.

My focus here nevertheless is the social, spatial and epistemological implications of the preservation of knowledge in libraries. A library is conventionally defined as a selection of organized published documents accessed by a defined user population. In literate cultures, libraries have stood historically at the material and symbolic centre of learning and teaching. Located physically at the midpoint of most university campuses and school grounds libraries, first and foremost, are buildings. Their imposing edifices of strong walls enclose spaces of ceremonious restraint and regulation. As silent, sacred places built to symbolize and sanctify scholarship, libraries functioned as secular counter sites to the medieval cathedral. Both emerged as material representations of the dominant discourses, religion and the immaterial spirit. Originating as private and later collegiate collections, libraries are materializations of a will to canonicity and exclusivity (Luke & Kapitzke, 1999). In print-based societies, with the police station, the church, the school and the town hall, public and academic libraries function as key cultural institutions that operate in and through discursive ceremonies and disciplinary practices.

As repositories and museums of printed, visual and audio artefacts, libraries preserve all that is deemed memorable by society. In a treatise on remembrance, theology and technology, Derrida (1996, p. 12) calls the deep psychic drive of humans to amass, organize and recall information at the public and personal levels, "the archival desire." State, school and university libraries have mediated the production, storage, retrieval and (re)distribution of knowledge and social capital during the modern era. By selectively collecting, preserving and circulating materials of dominant and subordinate cultural groups, libraries have played key ideological and political roles in social stratification through gate keeping. The use of library resources requires institutional affiliation. Public libraries charged members for borrowing rights until only two decades ago. Like the remembrancers of traditional cultures, librarians are socially legitimated agents who select, organize, guard and distribute informational materials, and thereby officiate as cultural intermediaries and moral custodians of the collective epistemological imagination.

The Cybrary in Digital Culture

Digital culture has disrupted modernity and its cultural apotheosis, the library. Instant and unrestricted access to information on the Web has revolutionized the nature of writing, identity, culture, community and education. The materiality and fixity of a book requires that it be collected and housed centrally. This, in turn, constrains students to come physically to the library for their information needs. By contrast, text in cyberspace has no centre because, if privilege and protection protocols are similar, any node or file containing information is as accessible as any other.

The implications of these changes for libraries are considerable. The advent of the digital library means that resources and services can be accessed on or off campus. In the current transitional stage, most libraries integrate traditional procedures and online services. Shifts in the technologies and economies of memory from a specific location containing a finite archive to decentred networks of resources require a new orientation to the role of memory and its trade within the information economy. The "compression of space-time" in postmodern societies (Harvey, 1988) and the advent of remote access to resources, signifies the metaphoric collapse of library walls. New ways of library usage constitute one of the many instances of the "end of geography" (O'Brien, 1992) underpinning current understandings of the notion of space. Foucault reminds us that

> the present epoch will be above all the epoch of space. We are in the epoch of simultaneity: we are in the epoch of juxtaposition, the epoch of the near and far, of the side-by-side, of the dispersed… our experience of the world is less that of a long life developing through time than that of a network that connects points and intersects its own skein (Foucault, 1986, p. 22).

In the postmodern world, place and location are defined by the relations of proximity between two points, rather than as coordinates in time. The cybrary—as a de-materialized node in cyberspace, as an interface as well as an edifice—typifies this concept.

Being a digital simulation, cyberspace is not so much a place as a space. Cybraries, on the other hand, are both places and spaces. As hybrid technologies, spanning oral, print and digital cultures, cybraries are electronic gateways to access information located everywhere for clients located anywhere (Ensor 1997). Without setting foot in the premises or speaking to a member of staff, students can check if a book is sitting on the shelf, request a resource, view their loans record and peruse the listing of new accessions. Journal articles can be

ordered and received via email. Students can read lecture notes, course reading lists, exam papers and university handbooks. Library homepages now provide students access to subject-specific databases, full-text e-journals, free downloads of software and information about online and face-to-face information skills training programs.

Understanding the relations that inhere between space and cultural practice provides a basis for analysing the distribution of knowledge and power in particular social sites. The knowledge universe was previously one in which the user visited a centrally located library. Within the confines of a library's public space, patrons are subject to the prevailing discursive practices, normalising ideologies and disciplinary technologies such as fines and the cancellation of borrowing rights. Conversely, located in the nested personal space of home or school and hyperspace, the library patron of today is surrounded by a constellation of libraries. This makes possible a shift in the balance of power between the cybrary and its "visitors." Students now have choice in which facility they use for an informational task, the range of which includes commercially based sources such as online bookshops and databases. This renders libraries vulnerable to client attrition and subsequent reductions in funding.

At this stage of networked environments, it is presumptuous if not pointless to posit where and in what the centre will come to reside. Centres assume peripheries. Cyberspace, like the Möbius strip, hasn't a beginning, middle or end. Talk of literary and learning "centres" may have become the quaint argot of the Christian era and modernity in western culture. What then do these changes mean for teachers and students? What are the implications of virtualisation for learning, teaching and researching in school and post-compulsory education? I turn here to an analysis of these changes for that ultimate technology of social and cultural maintenance, education.

GLOBAL INFORMATION ECONOMIES AND EDUCATION

The shift in western societies from "hard" manufacturing economies to "soft" information services and sectors renders the structures and practices of an industrial model of schooling inadequate (Gee, Hull & Lankshear, 1996). Unprecedented openings for change currently exist as rigid, print-based models of teaching and learning convert to more flexible, networked forms. In fundamentally altering what text is, digitisation has changed curricula, classrooms, teachers, students, textbooks, literacies and libraries (cf. Lanham, 1993). As technology has eroded the physical and symbolic boundaries of the library, so it is also changing what is conventionally understood as "schooling."

The following table (see Table 2) adapted from Fleming (1996) compiles a list of contrastive pedagogical and organisational features that characterize learning and teaching in societies whose economies are predominantly industry-based and information oriented. Note though that the binary structure of this table accentuates differences and conceals the durability and continuity of educational systems and their cultures. Whilst these features have been differentiated here for the sake of analytic and explanatory expedience, most activities in classrooms today are a combination of new and old technologies and practices.

Industrial Age Model	Information Age Model
book	screen
stand-alone	networked world
social logic of place	social logic of flow
school	community and media
school hours	open 24 hours
classroom based	resource based
teacher directed	student centred
teaching	learning to learn
centred on disciplinary subjects	interdisciplinary
instruction	construction
passivity	interactivity

Table 2
Pedagogical Features of Industrial Age and Information Age Models of Schooling

In practice, the fusing of industrial and informational approaches to learning and teaching, transforms both. Hence, their relational principle is not "either – or" but "both – and." For example, the recent shift of curricular focus away from the school to community and the media for pedagogical texts and literacies has a two-way effect that changes both the former and the latter. Information Age modes of learning and teaching posited in this model are characterized by increased integration ("networked world", "interactivity", "interdisciplinary"), flexibility ("social logic of flow", "screen") and community ("community and media", "student centred", "resource based"). Schools are simultaneously local and global because the texts, knowledges and social relations of emergent cyber spaces are unravelling atomistic curricula that were designed and produced *en masse* for what is now considered a mythic generic student population.

Collections of curricular and recreational materials held in libraries today remain constrained by the external political economies of commercial book publishing and distribution (Apple, 1984). By contrast, within policy and infrastructural frameworks ensuring equity, entrée to online resources can reduce existing ideological and economic restraints on access to informational materials. Sophisticated search engines provide access to authoritative Web-based publications such as peer-reviewed journals, research reports, conference proceedings and subject reference databases. Information users are increasingly self-sufficient at solving their information needs and, conversely, at sharing the products of their intellectual labour. By designing and producing their own cyber library resources, learners can participate in an inclusive, worldwide educational conversation. Techno-savvy students are able to cut CDs of assignments, and place them in the library for use by their peers. Students can publish customised materials on school websites, and generate local and global readerships for these authentic texts. Students are thereby released from the physical boundaries of the conventional school and its inwardly focused, task-based curriculum. Technological and informational expertise then becomes a valuable context and a resource for ongoing social interaction and intellectual stimulation.

With new forms of informational practice, new kinds of textual and epistemological logics are superseding the modernist logic of libraries. Deriving mainly from the Dewey Decimal or Library of Congress classification systems, print-based forms of linear logic guided students to an authoritative, canonical cultural resource. Alternatively, the rhizomatic structure of the Web and the increased autonomy of the user are restructuring modes of information management and use. The closing of the prestigious Graduate Schools of Library Science at the Universities of Chicago and Columbia in the United States tangibly illustrates the impact of these developments on the library profession (Berring, 1993). The School of Library Science at Columbia was the first school of library education founded by Melvyl Dewey.

Other disciplines and commercial enterprises are now appropriating the business of information studies education. Business schools train management information system specialists, and computer science departments produce database programmers and managers. Whereas the library and teaching professions have viewed information as a neutral entity and activity, it is now a commodified, marketable product. Control over educational resources and the social, economic and political capital they endow has transferred from agents of religion in traditional societies, to those of the state in the modern era and increasingly to market based techno- and infopreneurs of the current postmodern age.

CONCLUSION

The present gives pause for strategic change and for the opportunity to critique and reconfigure cybrary curricula and pedagogy, and their information policies and procedures. The heavy reliance on information services is changing the role played by the cybrary in what will become an increasingly dissipated educative process. As facilitators of learning, cybraries will provide the space, the place and the personnel for the mapping, indexing, abstracting and navigating of cyber-spatial information. The work of the librarian will change from a traditional custodial role (i.e., book police) to an advisory and/or consultancy capacity. In collaboration with teachers and community members, cybrarians will function as editorial operators and information mentors, making knowledge accessible and usable to learners.

Collective memory resided first in the evanescent event of the communal ceremony, that is to say, in the space of time. Later, in book culture, shared memory was secured in the library, or in the space of place. Informatics and information science today are relocating to the fluid space of cyber virtuality. Though still fundamental to schools and schooling, time and place are being displaced as the main loci of communicative and informational mediation. Access to knowledge is no longer constrained to one occasion, one mind, or one building. Because virtual space is both nowhere and everywhere, it can potentially increase teacher and student options, agency and autonomy in learning and teaching.

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[1] Schement and Curtis (1995, pp. 257-278) provide a comprehensive timeline of developments in information and communications technologies. To highlight the complex interplay of conceptual and material invention, the historical events are presented in three columns that juxtapose conceptual and institutional developments; information acquisition and storage devices; and information processing and transmission tools.

[2] For example, people of China used a substance containing charcoal, saltpetre and sulphur for celebratory (i.e., fireworks) and communicative (i.e., signs) purposes for three centuries before the “civilised west” discovered a military use for what they called "gunpowder."